Program Assumptions and Logic applied to Medicaid Pharmacy Claims Data

For this process, it was necessary to make assumptions to evaluate the data available to us. Below is a brief description of the assumptions we made and the logic we used based on our assumptions.

Many of the assumptions were made to give conservative estimates and avoid too many false positives.

1) Average Number of Doses per Day
   a. The average number of doses per day represents an average of the number of doses dispensed divided by the number of days in the study period (12 months = 366 days, 3 months = 90 days)
   b. To account for problem fills, we used the following algorithms for SABA:
      i. SABA (canister, aerosol, bottle): # cans >5 = bad fill
      ii. drug quantity/ drug package size ≠ multiple of 8 or 15 = bad fill
      iii. # Canister Equivalents (CE – explained below) < 0.1 = bad fill
   c. To account for problem fills, we used the following algorithms for controllers:
      i. Controller: (canister, aerosol, blist pack*): # Cans > 5 = bad fill
      ii. Controller: (blist pack, bottle, vial, ampule): # CE < 0.1 = bad fill
2) Excessive Use is defined as two exacerbations per week[1]
   a. For each exacerbation, up to 4 doses are given each day (1 dose every 4-6 hours)
   b. For metered dose inhalers (MDIs), 1 dose = 2 puffs.
      i. In each exacerbation, a patient is not using medication during sleeping hours (that is why it is 4 doses not six).
   c. At 2 exacerbations per week, and 4.5 weeks per month, you get 36 doses per month.
   d. 36 doses per month equates to a single MDI being 2.77777 months or an 83.3 day supply.
   e. To be conservative, we chose a 60 day supply (for one MDI) as being a rounder and more conservative figure to use as a more representative figure.
3) A single albuterol MDI contains 200 actuations (puffs) which = 100 doses.
   a. 100 doses of a 17 g inhaler = 5.882 doses per unit (the unit of measurement for this inhaler is grams).
4) SABA CE
   a. Typical MDI contains 200 actuations or 100 doses.
   b. The number of doses to equal one CE is 100.
   c. CE is defined as (E*G)/(100*F)
5) Controller CE
   a. CE is defined as E/(60*F) for the following (primarily nebulized solutions): AMPUL, BLIST (not Fluticasone/Salmeterol or Salmeterol)
   b. CE is defined as E/30 for the following: MONTELUKAST
   c. CE is defined as E/F for the following: All others

Key:
E: Drug Quantity
F: Drug Package Size
G: # of doses per package

1. National Asthma Education and Prevention Program (National Heart Lung and Blood Institute) Third Expert Panel on the Management of Asthma. *Expert Panel report 3 : guidelines for the diagnosis and management of asthma*. [Bethesda, Md.]: National Institutes of Health, National Heart, Lung, and Blood Institute; 2007.

For controllers, a Can or Can Equivalent (CE) is one prescription of an amount that typically lasts approximately 30 days or less. For prescriptions longer than 30 days, divide the days supply by 30 and round down to convert. For example, a 100-day prescription is equal to three Cans or CE (100/30 = 3.33, rounded down to 3). Cans are identified in the drug package description field as AER W/ADAP, Canister, or Blister Pack. Canister equivalents are calculated based on Days Supplied, Drug Quantity, and Drug Package Size for Ampul/Kits, Bottles, and Packets.

For SABA, a Can is defined based on a standard 90-mcg albuterol inhaler (200 inhalations). Cans with more inhalations, for example a 200-mcg inhaler (400 inhalations as in Maxair) count as 2 Cans. Cans are identified in the drug package description field as AER W/ADAP, Canister, or Blister Pack. Canister equivalents are calculated based on Days Supplied, Drug Quantity, and Drug Package Size for Vials and Bottles.